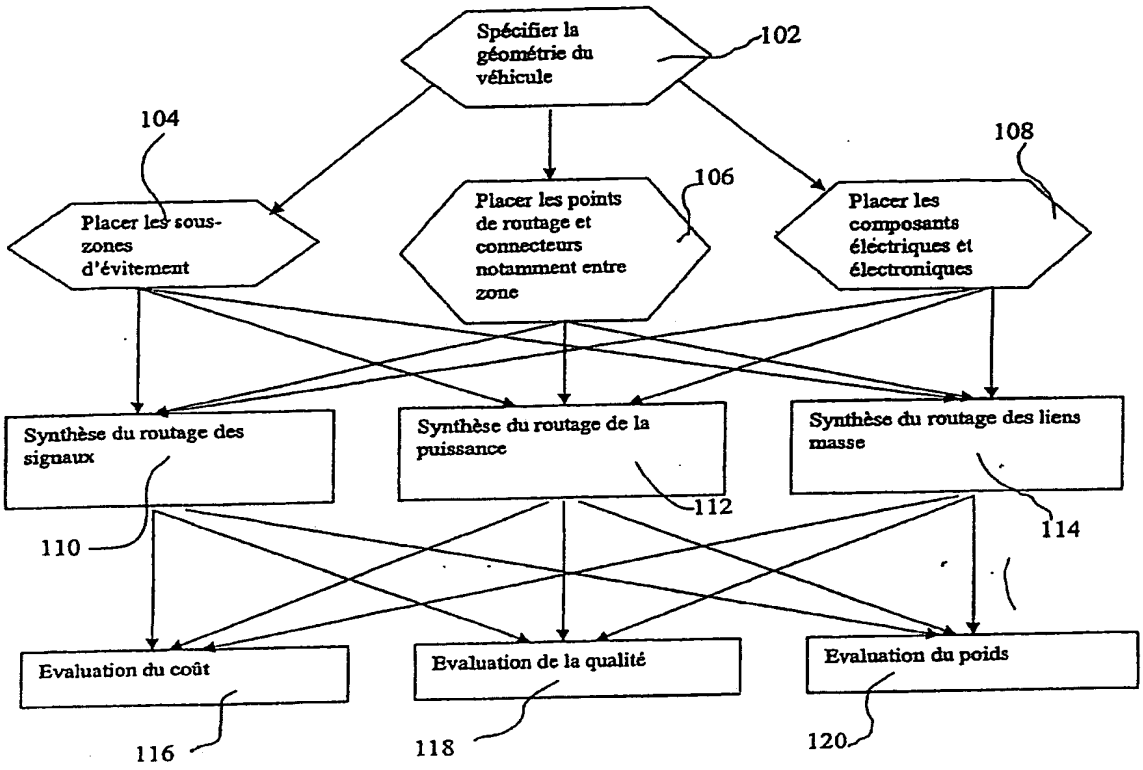

Figure 1

102 Specify the vehicle geometry
104 Map the prohibited subzones
106 Map the routing points and connectors, particularly between zones
108 Map the electrical and electronic components
110 Synthesis of the routing of signals
112 Synthesis of the routing of power
114 Synthesis of the routing of ground links
116 Cost evaluation
118 Quality evaluation
120 Weight evaluation

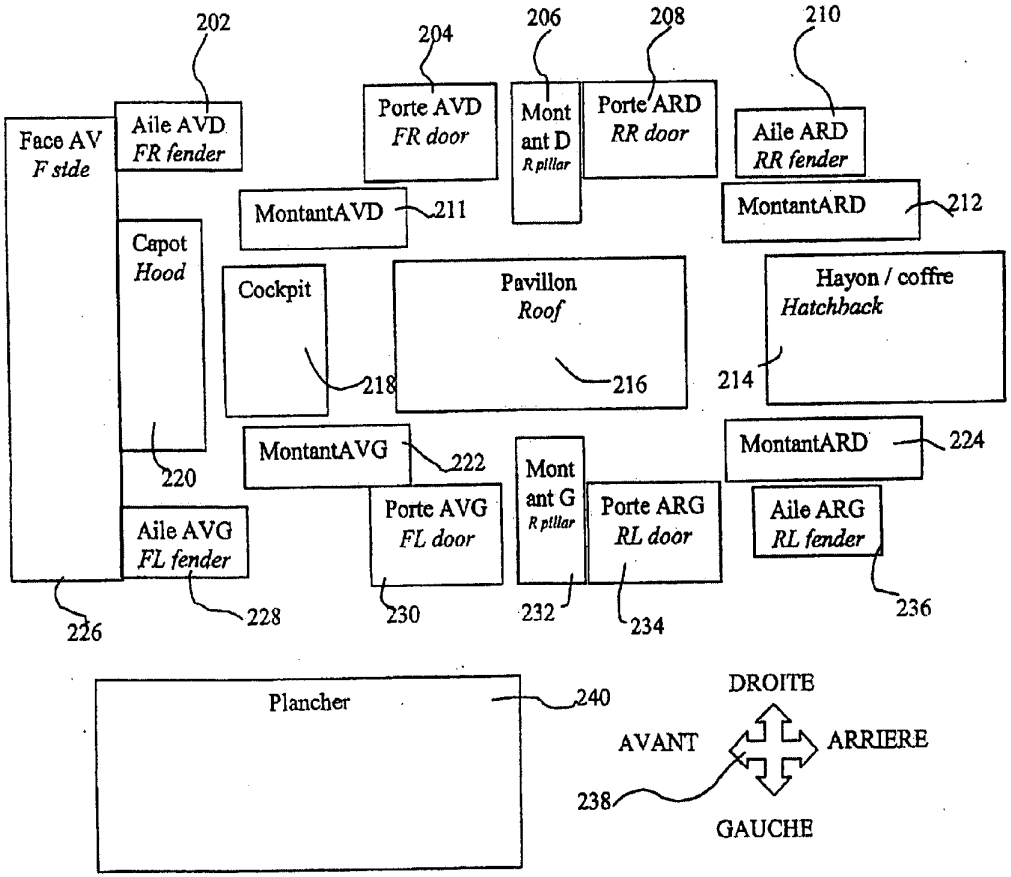

Figure 2

226	Front face	220	Hood	232	Left column
202	Right front fender	218	Cockpit	234	Left rear door
204	Right front door	216	Roof	236	Left rear fender
206	Right column	214	Tailgate / Trunk	240	Floorboard
208	Right rear door	222	Left rear column	DROITE	RIGHT
210	Right rear fender	224	Left rear column	AVANT	FRONT
211	Right front column	228	Left front fender	ARRIERE	REAR
212	Right rear column	230	Left front door	GAUCHE	LEFT

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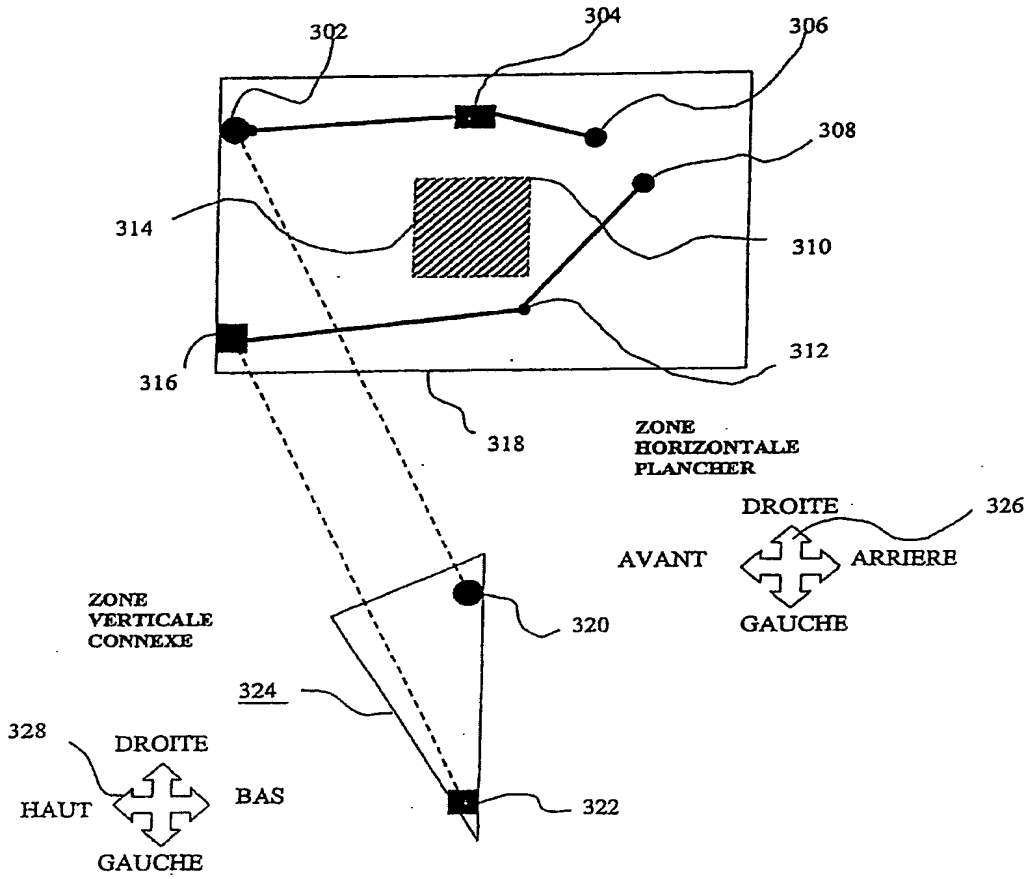

Figure 3

CONTIGUOUS VERTICAL ZONE		FLOORBOARD HORIZONTAL ZONE	
DROITE	RIGHT	DROITE	RIGHT
HAUT	TOP	AVANT	FRONT
GAUCHE	LEFT	GAUCHE	LEFT
BAS	BOTTOM	ARRIERE	BACK

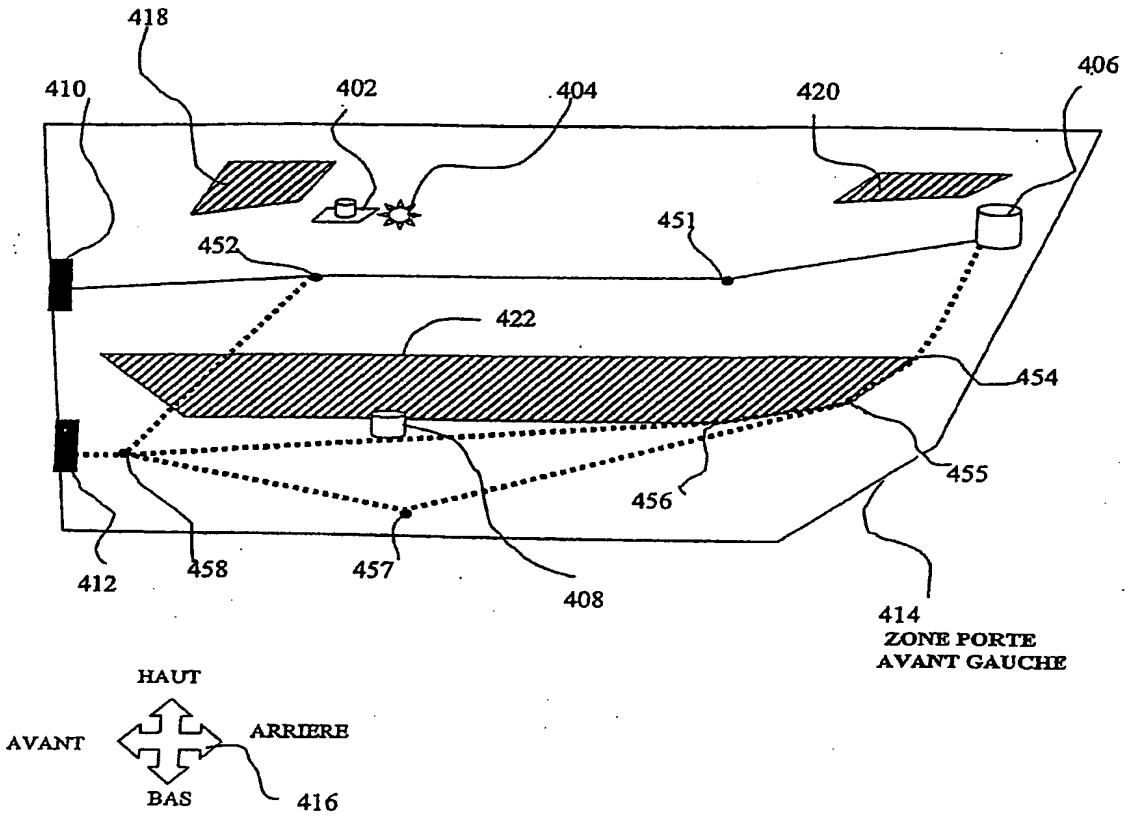

Figure 4

LEFT FRONT DOOR ZONE	
HAUT	TOP
AVANT	FRONT
BAS	BOTTOM
ARRIERE	REAR

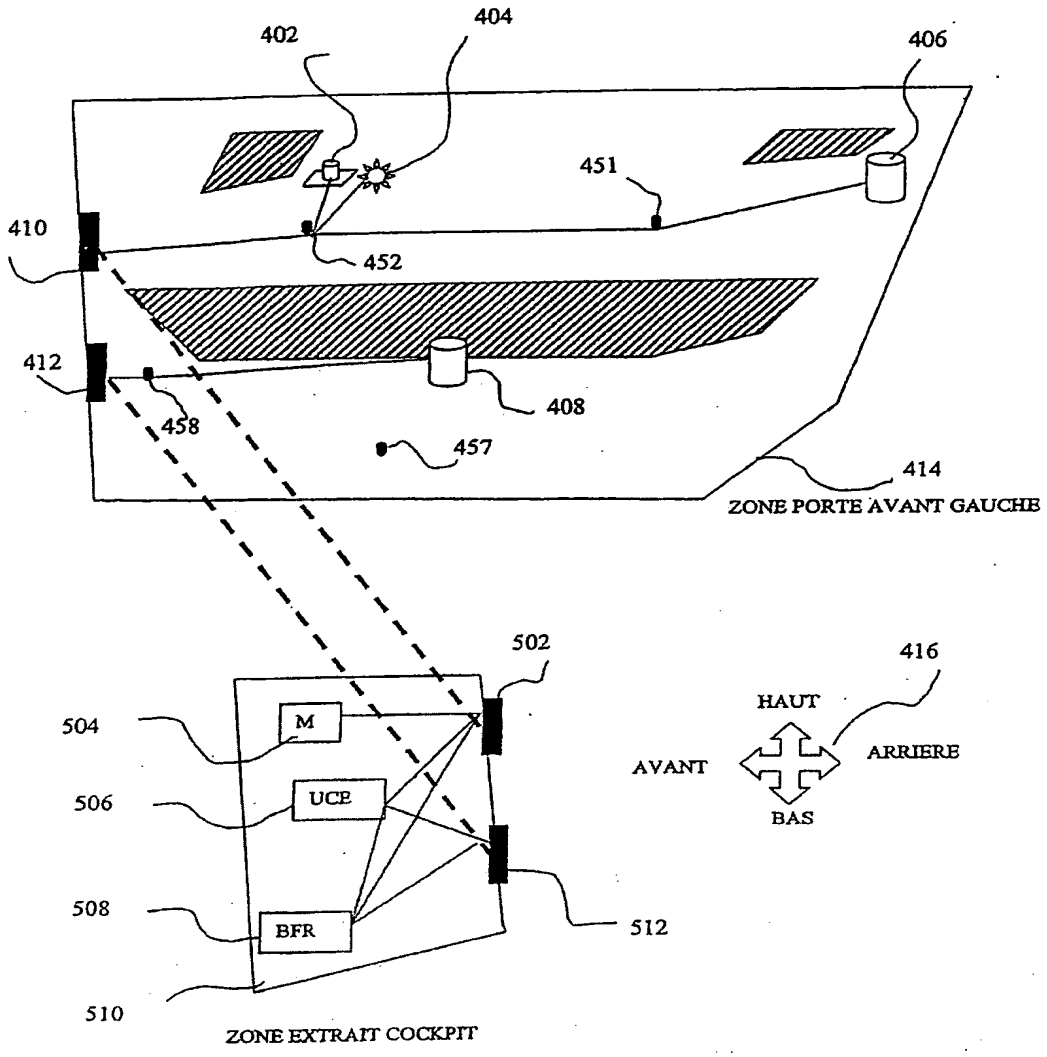

Figure 5

LEFT FRONT DOOR ZONE

HAUT	TOP
AVANT	FRONT
BAS	BOTTOM
ARRIERE	REAR

504 Ground
506 Electronic control unit
510 Fuse and relay box

COCKPIT EXTRACT ZONE

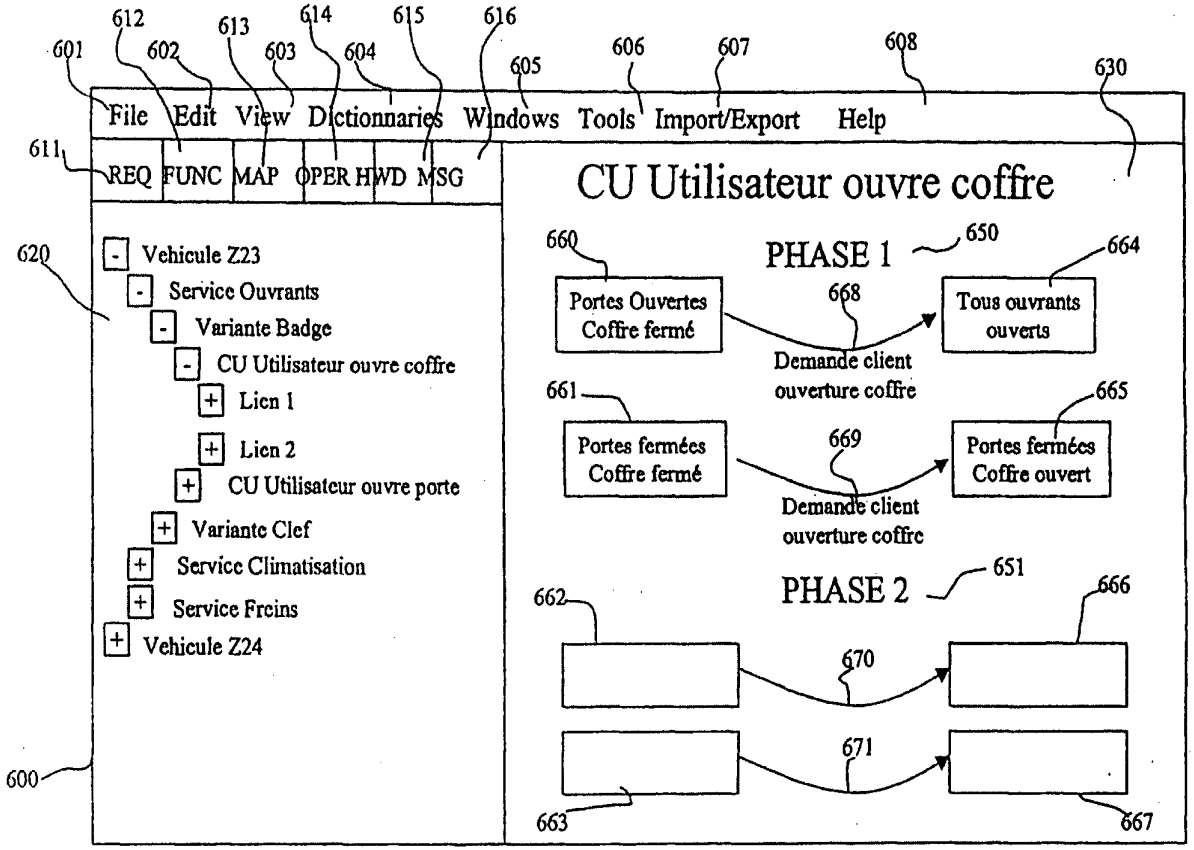

Figure 6

Use case: user opens trunk

Vehicle Z23
- Openings service
  - Badge variant
    - Use case: user opens trunk
      - Link 1
      - Link 2
    - Use case: user opens door
  - Key variant
- Air-conditioning service
- Brake service

Vehicle Z24

660	Doors open, trunk closed
668	Client request to open trunk
664	All openings open
661	Doors closed, trunk closed
669	Client request to open trunk
665	Doors closed, trunk open

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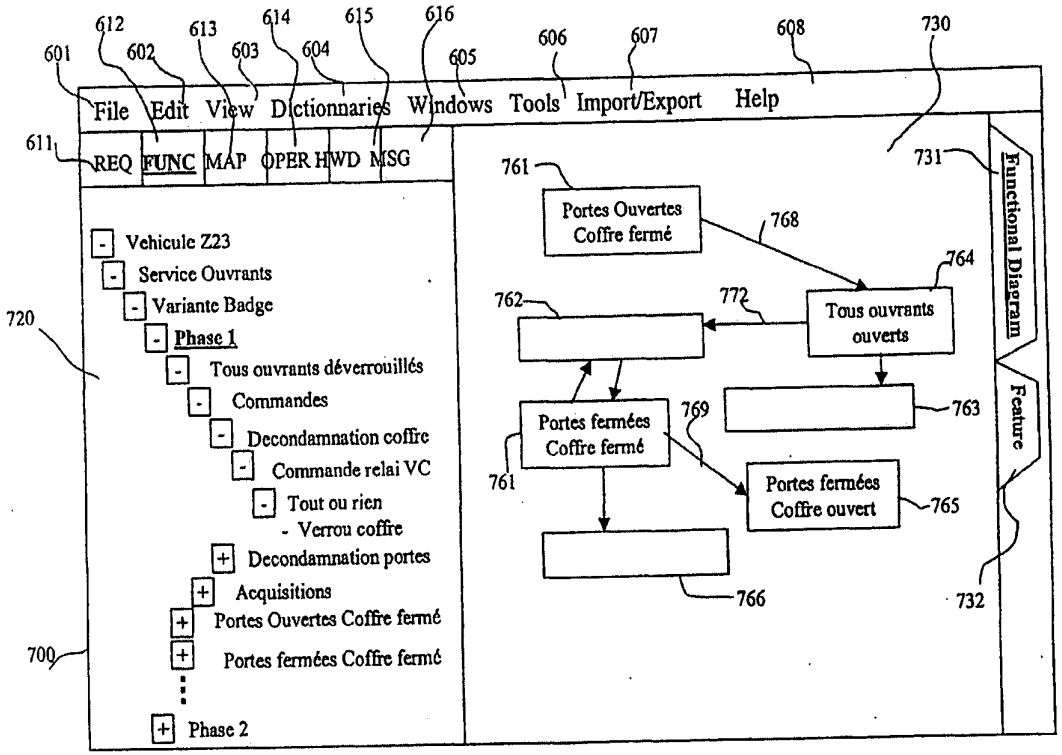

Figure 7

Vehicle Z23
Openings service
Badge variant
Phase 1
All openings unlocked
Instructions
Unlatch trunk
Trunk-lock relay instruction
All-or-nothing
- Trunk lock
Unlatch doors
Acquisitions
Doors open, trunk closed
Doors closed, trunk closed
Phase 2

761 Doors open, trunk closed
764 All openings open
761 Doors closed, trunk closed
765 Doors closed, trunk open

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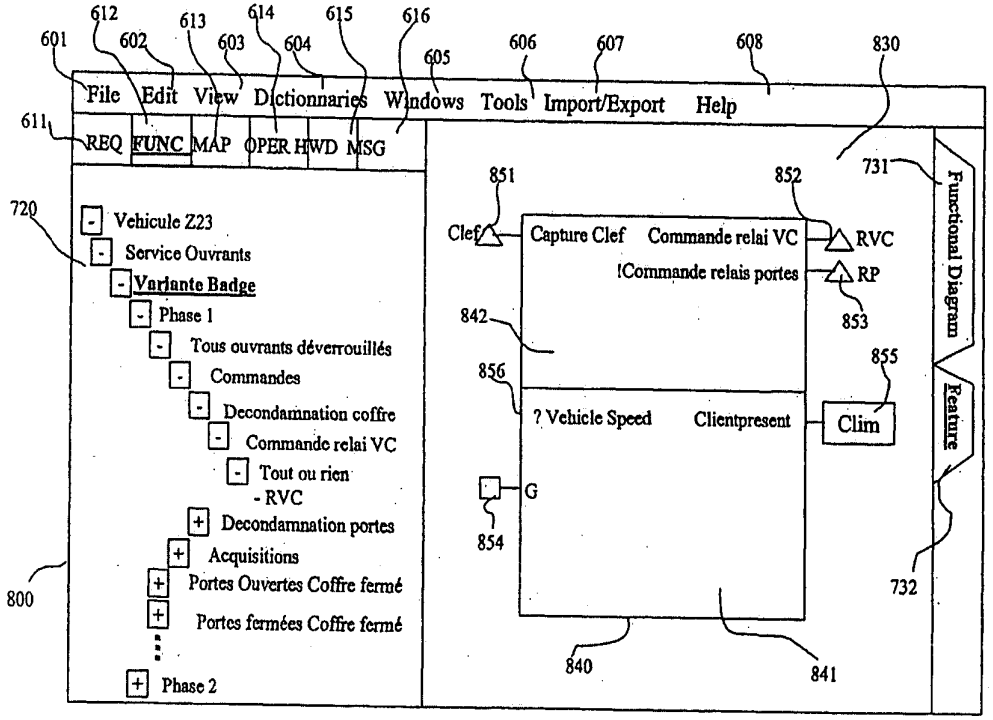

Figure 8

Vehicle Z23
Openings service
Badge variant
Phase 1
All openings unlocked
Instructions
Unlatch trunk
Trunk-lock relay instruction
All-or-nothing
- Trunk-lock relay
Unlatch doors
Acquisitions
Doors open, trunk closed
Doors closed, trunk closed
Phase 2

851 Key
852 Trunk-lock relay
853 Door relay
855 Air conditioning
Capture ... = Key sensing
Commande ... = Trunk-lock relay instruction
Door relay instruction

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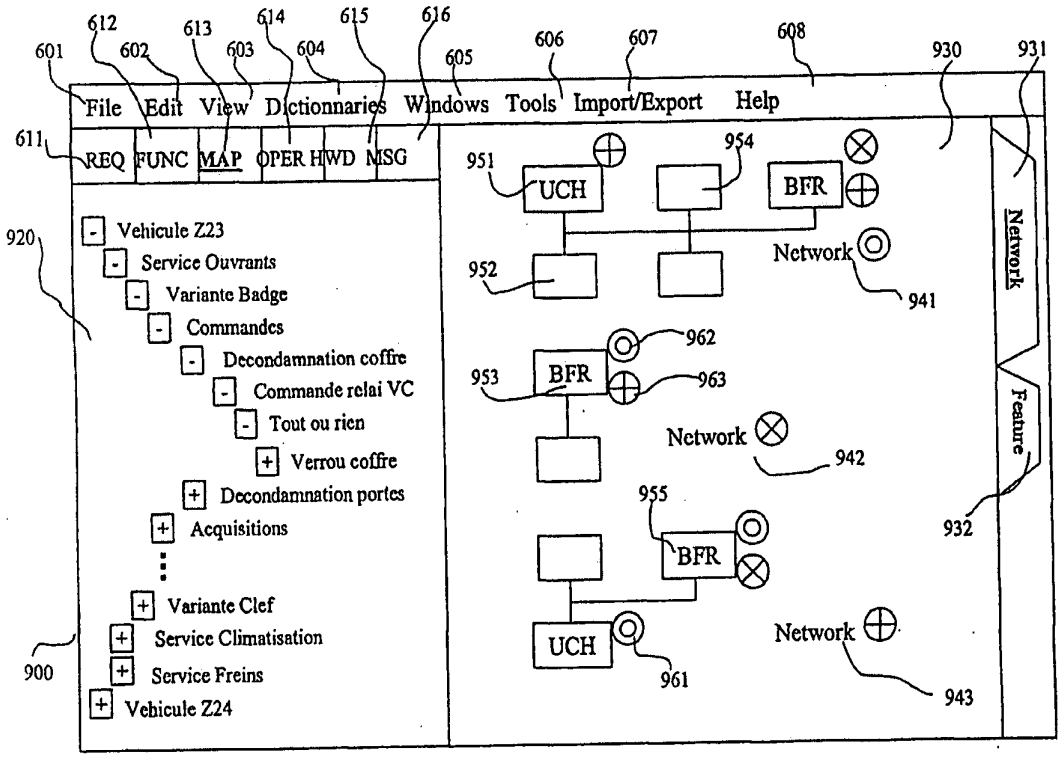

Figure 9

Vehicle Z23
Openings service
Badge variant
Instructions
Unlatch trunk
Trunk-lock relay instruction
All-or-nothing
Trunk lock
Unlatch doors
Acquisitions
Key variant
Air-conditioning service
Brake service
Vehicle Z24

UCH Passenger-compartment control unit
BFR Fuse and relay box

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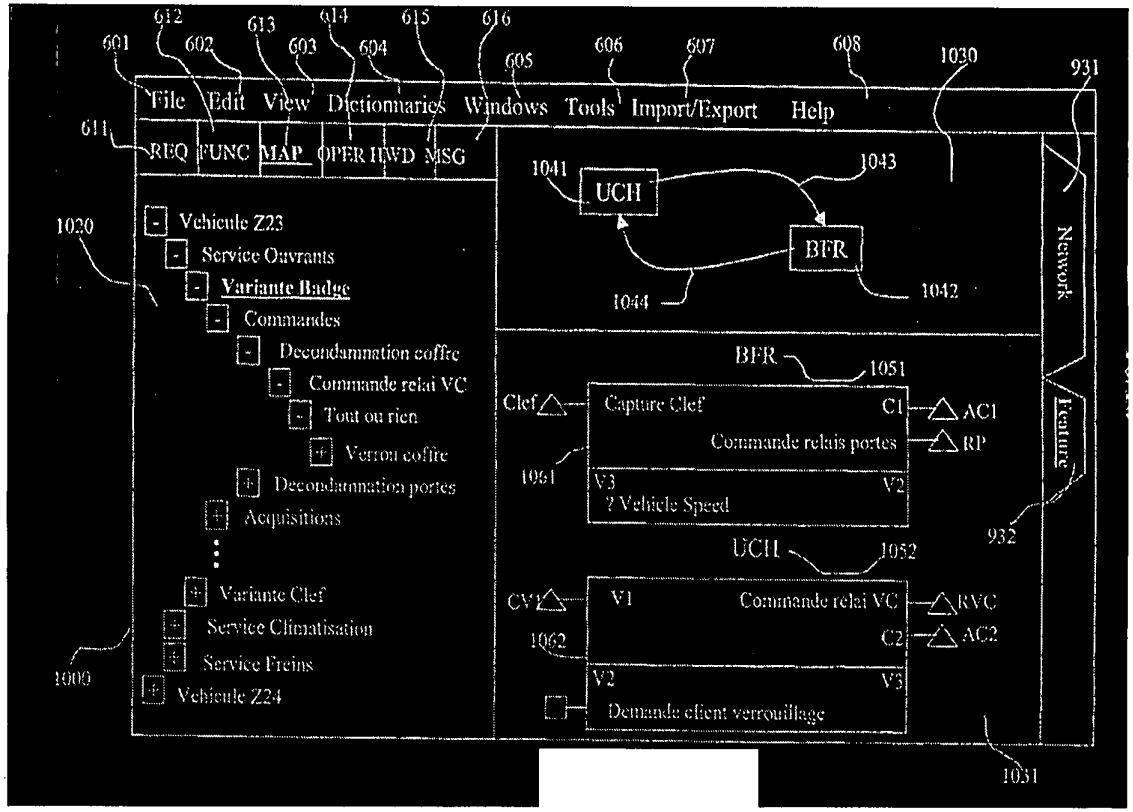

Figure 10

Vehicle Z23
Openings service
Badge variant
Instructions
Unlatch trunk
Trunk-lock relay instruction
All-or-nothing
Trunk lock
Unlatch doors
Acquisitions
Key variant
Air-conditioning service
Brake service
Vehicule Z24

UCH Passenger-compartment control unit
BFR Fuse and relay box
Clef Key
Capture ... = Key sensing
Commande ... = Door relay instruction
RP Door relay
Commande ... = Trunk-lock relay instruction
RVC Trunk-lock relay
Demande ... Client request to lock

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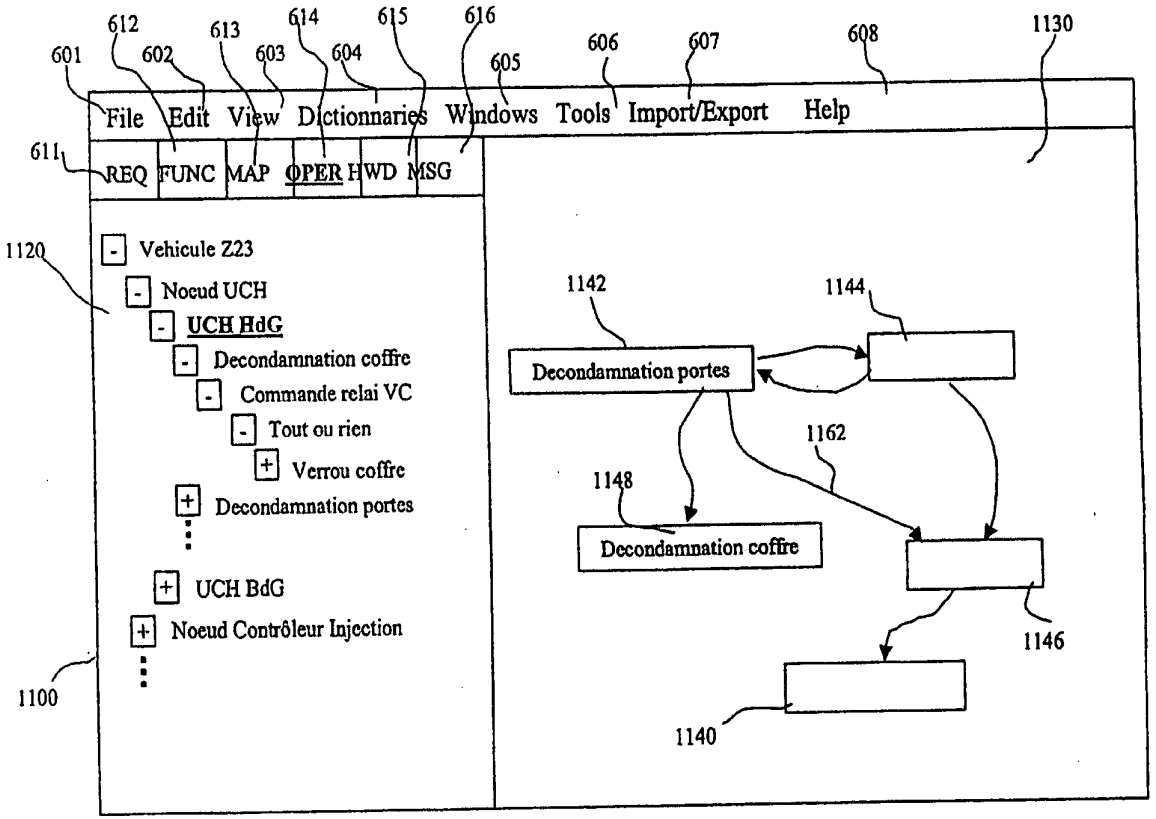

Figure 11

Vehicle Z23
Passenger-compartment control-unit node
Passenger-compartment control-unit HdG
Unlatch trunk
Trunk-lock relay instruction
All-or-nothing
Trunk lock
Unlatch doors
Passenger-compartment control-unit BdG
Injection controller node

1142 Unlatch doors
1148 Unlatch trunk

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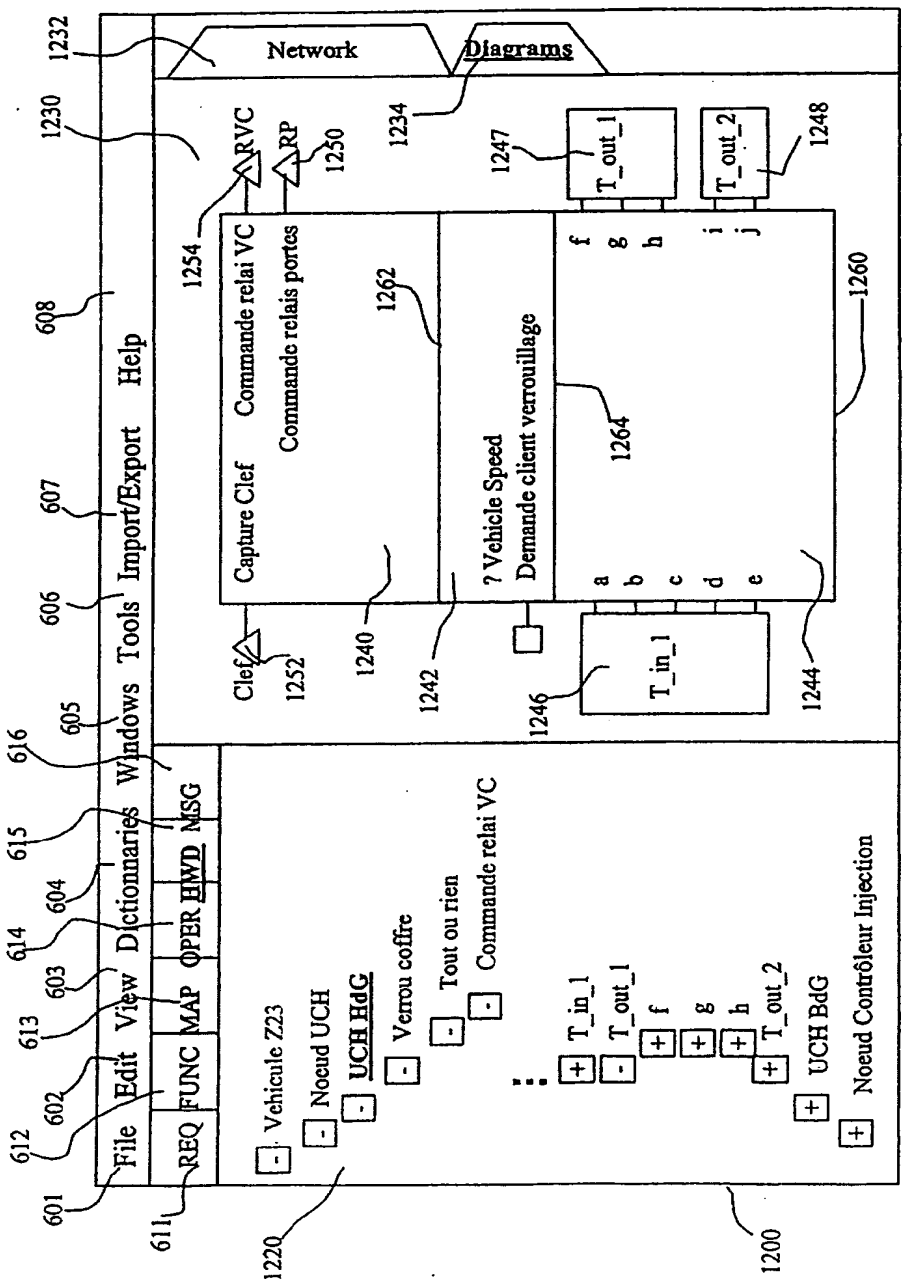

Figure 12

Vehicle Z23
Passenger-compartment control-unit node
Passenger-compartment control-unit HdG
Trunk lock
All-or-nothing
Trunk-lock relay instruction
Passenger-compartment control-unit BdG
Injection controller node

Clef Key
Capture ... = Key sensing
Commande ... = Trunk-lock relay instruction
RVC Trunk-lock relay
Commande ... = Door relay instruction
RP Door relay
Demande ... Client request to lock

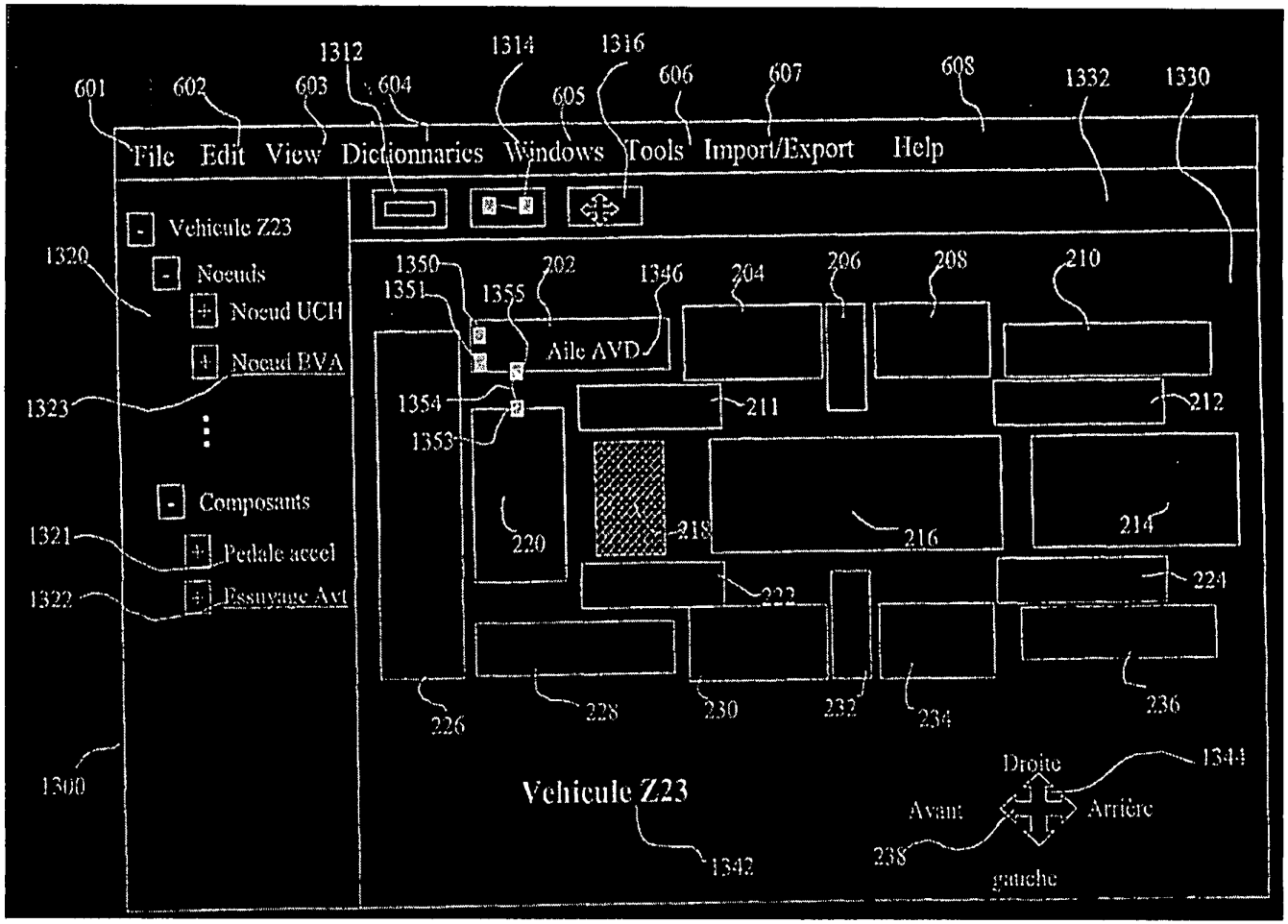

Figure 13

Vehicle Z23
Nodes
Passenger-compartment control-unit node
BVA node

Components
Accelerator pedal
Front wipers

1346 Right front fender

Vehicle Z23 Right
Front Rear
Left

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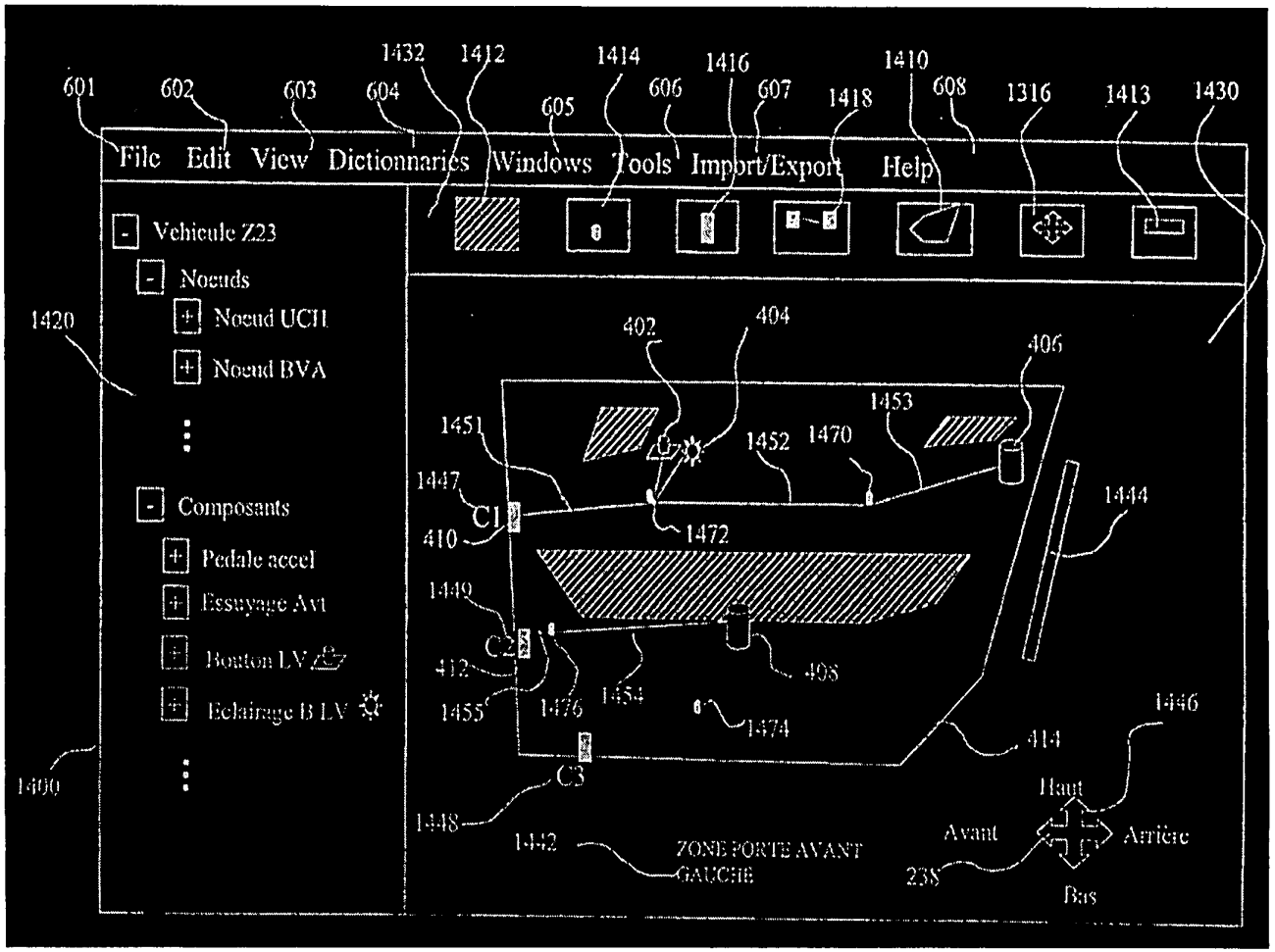

Figure 14

Vehicle Z23
Nodes
Passenger-compartment control-unit node
BVA node
Components
Accelerator pedal
Front wipers
Window lifter button
Light of window lifter button

LEFT FRONT DOOR ZONE

Top
Front Rear
Bottom

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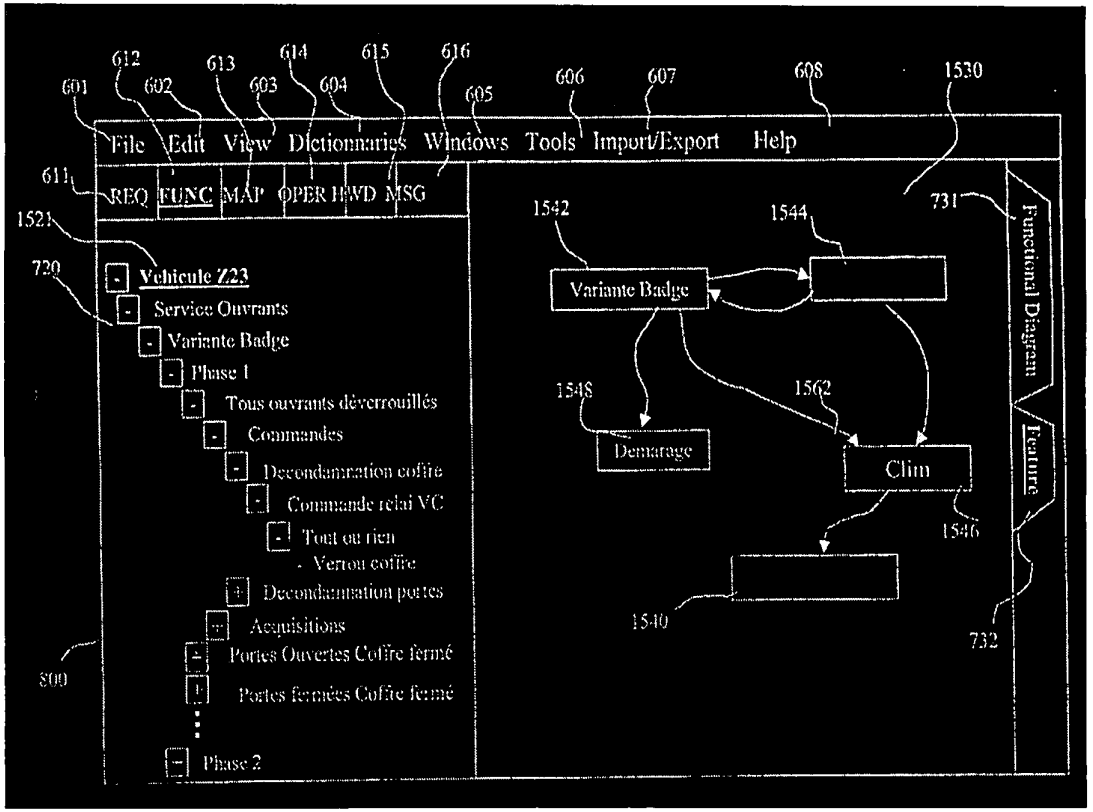

Figure 15

Vehicle Z23
Openings service
Badge variant
Phase 1
All openings unlocked
Instructions
Unlatch trunk
Trunk-lock relay instruction
All-or-nothing
- Trunk lock
Unlatch doors
Acquisitions
Doors open, trunk closed
Doors closed, trunk closed
Phase 2

1542 Badge variant
1548 Starting
1546 Air conditioning

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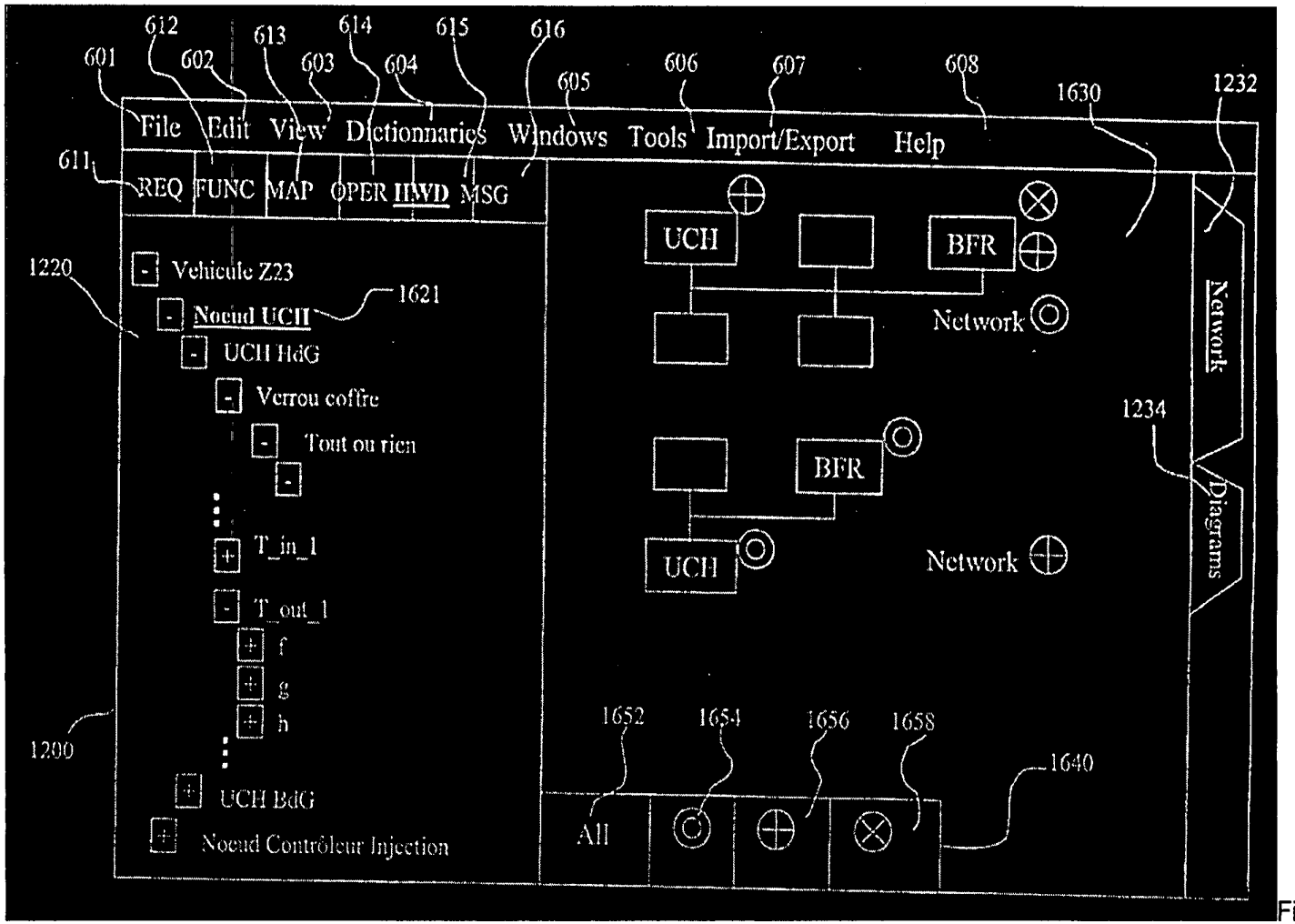

Figure 16

Vehicle Z23
Passenger-compartment control-unit node
Passenger-compartment control-unit HdG
Trunk lock
All-or-nothing
Passenger-compartment control-unit BdG

Injection controller node

UCH Passenger-compartment control unit
BFR Fuse and relay box

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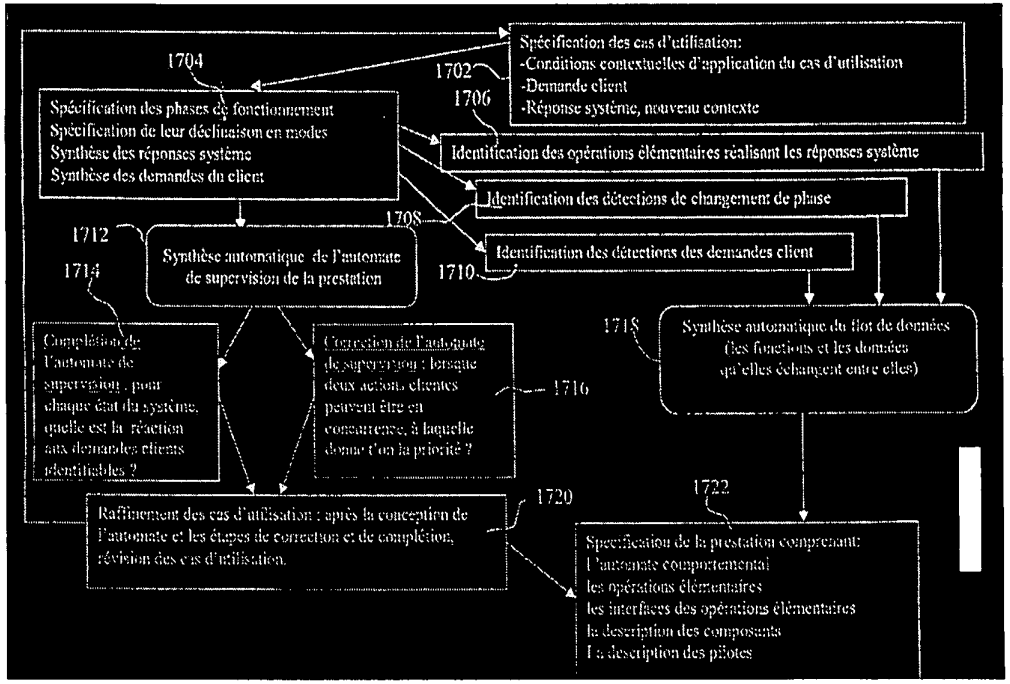

Figure 17

1702	Specification of use cases: - Contextual conditions of application of the use case - Client request - System response, new context	1716	Correction of the supervising automaton: when two client actions may be competing, which is given priority?
1704	Specification of operating phases Specification of their declinations in mode Synthesis of system responses Synthesis of client requests	1718	Automatic synthesis of the data flow (the functions and the data that they exchange with one other)
1706	Identification of elementary operations for executing the system responses	1720	Refinement of use cases: after design of the automaton and the steps of correction and supplementation, revision of use cases.
1708	Identification of detections of phase change	1722	Specification of the service comprising: the behavior automaton the elementary operations the interfaces of the elementary operations the description of the components the description of the drivers
1710	Identification of detections of client requests		
1712	Automatic synthesis of the automaton for supervision of the service		
1714	Supplementation of the supervising automaton: for each system state, what is the reaction to identifiable client requests?		

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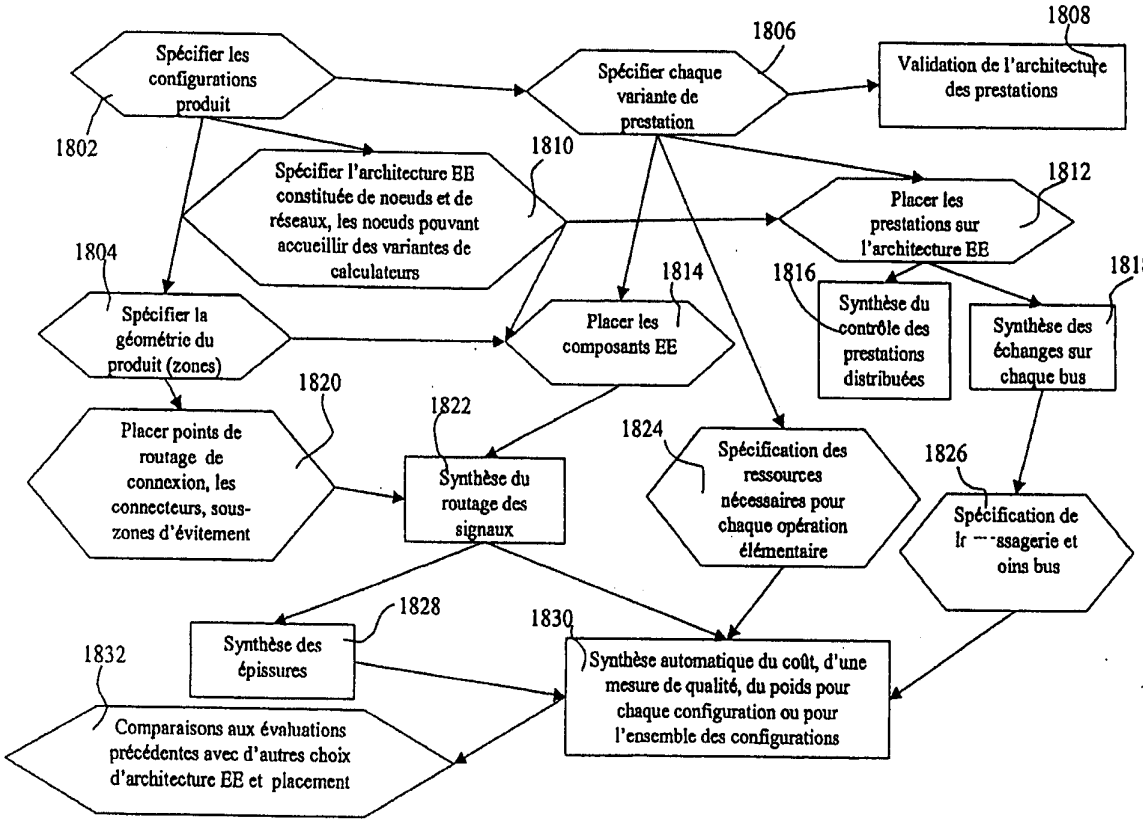

Figure 18

1802 Specify the product configurations
1804 Specify the product geometry (zones)
1806 Specify each service variant
1808 Validation of the service architecture
1810 Specify the electrical and electronic architecture composed of nodes and networks, the nodes being able to receive calculator variants
1812 Map the services onto the electrical and electronic architecture
1814 Map the electrical and electronic components
1816 Synthesis of control of distributed services
1822 Synthesis of routing of signals
1824 Specification of resources necessary for each elementary operation
1826 Specification of the electronic messaging service and bus needs
1828 Synthesis of splices
1830 Automatic synthesis of the cost, of a measure of quality, and of the weight for each configuration or for the set of configurations
1832 Comparisons with the preceding evaluations using other choices of electrical and electronic architecture and mapping

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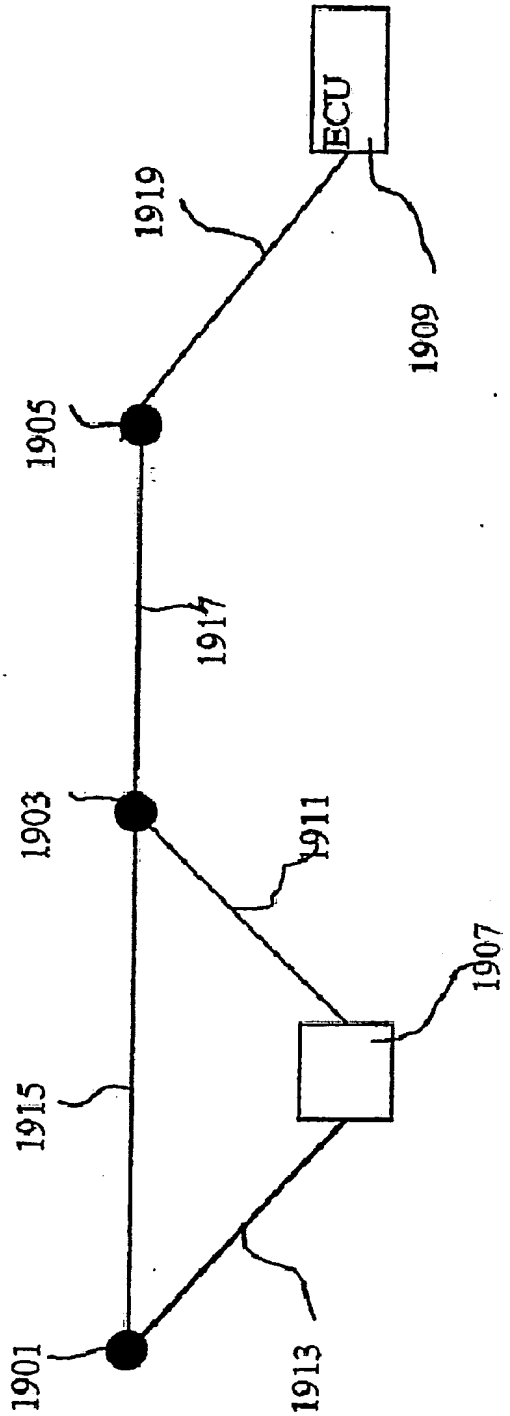

Figure 19

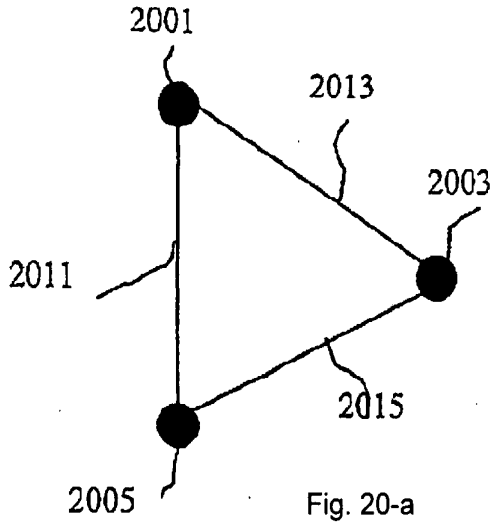

Fig. 20-a

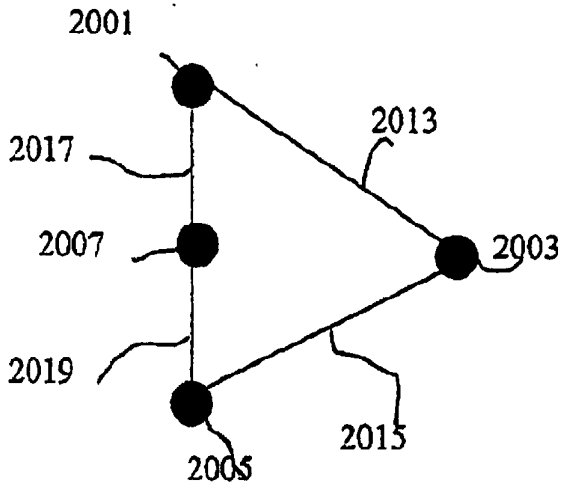

Fig. 20-b

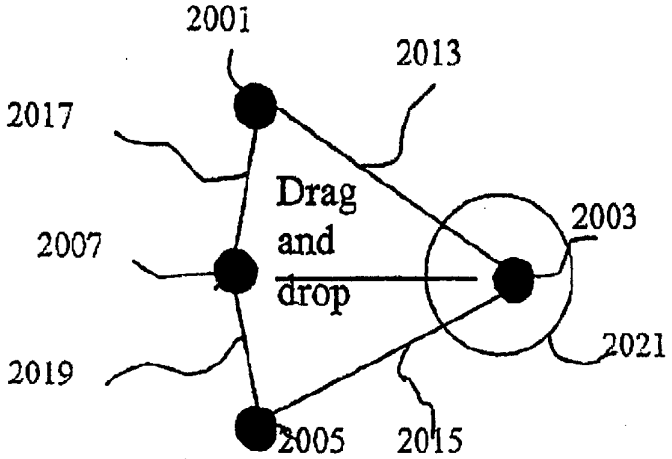

Fig. 20-c

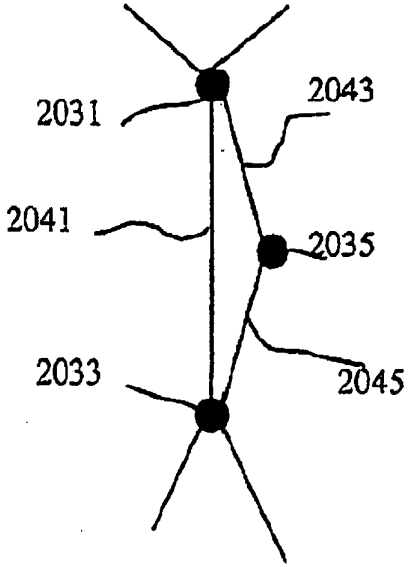

Fig. 20-d

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